# CITY OF BOSTON
## EMERGENCY MEDICAL SERVICES


## 2010 ANNUAL REPORT

# BOSTON EMERGENCY MEDICAL SERVICES ANNUAL REPORT 2010

**CITY OF BOSTON EMERGENCY MEDICAL SERVICES**

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# MESSAGE FROM THE CHIEF

Boston EMS is widely recognized as one of the best emergency medical providers in the country – while we take great pride in our reputation, we must continue to earn it on a daily basis. Behind that pride is our commitment to providing the residents and visitors of Boston with exceptional pre-hospital emergency medical care 24 hours a day, 365 days a year.

2010 was another challenging and successful year for Boston EMS. Our team of highly trained and specially skilled EMTs and Paramedics responded to nearly 110,000 calls for help and transported approximately 80,000 patients to area hospitals. Operationally, we strategically placed more ambulances on the street, reduced our response times to life threatening calls and opened a new two-bay ambulance station in Chinatown in collaboration with Tufts Medical Center. Boston EMS also experienced a number of significant leadership changes in 2010 with the addition of 3 Captains, 4 Lieutenants, and the promotions of Timothy Holland to Superintendent and Brendan Kearney to Superintendent-in-Chief.

As part of the Boston Public Health Commission, Boston EMS strives to improve access to healthcare across the City and provide all of our patients with the best pre-hospital emergency care in the country. The elimination of racial disparities in healthcare is a top priority for Mayor Menino. Our crews are in an excellent position to bring this goal to fruition, as we have a strong presence in every neighborhood of the City and provide compassionate, clinically advanced care to every patient we meet.

The successes we experienced in 2010 and the strength of our service are testament to our personnel's commitment to excellence. Boston EMS makes every effort to recruit and retain compassionate, professional, and dedicated pre-hospital providers. I am incredibly proud of our workforce. And while the personnel in the field are the most visible "face" of Boston EMS, we are also fortunate to have an equally committed staff of support personnel working behind the scenes to keep the operation running.

While we are well recognized as a leader in EMS, we must continue to elevate our standards of excellence. We have initiated a comprehensive strategic planning effort to guide our work. I look forward to reinvesting in the expansion of field units, ensuring that we have the personnel, training, and equipment necessary to carry out our goals. Each and every day, Boston EMS staff carries out our mission, serving at the intersection of public safety and public health. Our team works tirelessly to serve the people of Boston.

Sincerely,

Jim Hooley

# MISSION VISION VALUES

## MISSION STATEMENT

Boston EMS, the provider of emergency medical services for the City of Boston, is committed to compassionately delivering excellent pre-hospital care and to protecting the safety and health of the public.

## VISION STATEMENT

Boston EMS' vision is to expand upon our role as a critical public safety agency that delivers exceptional pre-hospital emergency medicine in an urban environment. The department will remain at the forefront of EMS advancements, driving progress in clinical care, operations, research and training. As a leader in all-hazard emergency preparedness, we will enhance our workforce and community's ability to be resilient when confronted by man-made and natural disasters. Boston EMS will continue to be viewed as a challenging, diverse and rewarding place to work as well as a model for other EMS agencies.

## CORE DEPARTMENT VALUES

***Patient Advocacy*** **-** The health and well-being of the patient is always our first priority. We are professionals who treat every patient with respect and compassion.

***Clinical Excellence*** **-** The members of Boston EMS are highly skilled and specially trained to provide state of the art pre-hospital emergency medical services. We provide every patient with excellent clinical care.

***Leadership & Innovation*** **-** As a leader in the field of pre-hospital emergency medicine, we pride ourselves on innovating and leveraging the latest advances in both medicine and technology, bringing cutting edge care to the streets of Boston.

***People*** **-** Our people are our greatest asset. The knowledge, experience, and compassionate nature of our employees make our service exceptional. Our workforce includes skilled professionals from different backgrounds and cultures, reflecting the diversity of the communities we proudly serve.

***Collaboration*** **-** We strive to work effectively with our public safety and public health partners to solve problems, make decisions, and achieve common goals.

***Pride & Unity*** **-** We are proud of the work we do and the strength of our service. We are committed to one another and the patients we serve.

***Preparedness*** **-** We are a leader in the field of emergency preparedness and take an active role in planning, training, response and recovery efforts to mitigate the medical consequences of disasters. We maintain the highest level of organizational and individual preparedness.

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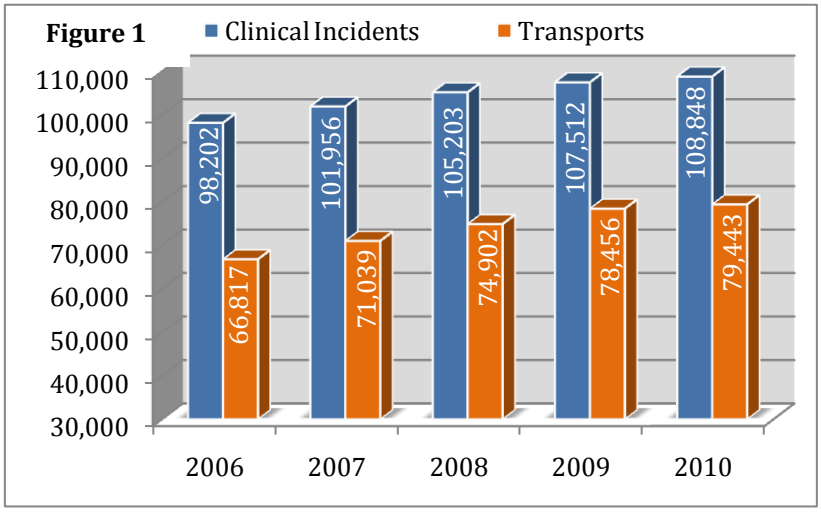
# BOSTON EMS AT A GLANCE

Boston Emergency Medical Services (Boston EMS) is charged with delivering emergency medical services for the City of Boston. Responding to over 100,000 calls for help each year, Boston EMS is the largest municipal provider of EMS in New England and one of the busiest services in the country.




With a resident population of over 600,000, which swells to approximately 900,000 people during the work day, the City of Boston is the largest city in Massachusetts and the 20th largest in the United States. Boston is home to more than 20 short and long-term care hospitals and dozens of public and private colleges and universities. In addition, the City is home to Logan International Airport as well as several major transportation hubs including North and South Stations. Further, the Port of Boston is the largest in New England and the 22nd largest in the United States. Given Boston's historical significance, size, diversity and designation as the capital city of Massachusetts, Boston EMS operates in a challenging and rewarding work environment.

2010 was a record breaking year for Boston EMS. The Department experienced all time high transport and call volumes, while surpassing its median response time goals. Additionally, for the first time Boston EMS began surveying all transported patients to collect feedback regarding service delivery. A resounding 93% of respondents reported their overall satisfaction with Boston EMS was either excellent or good (80% and 13%, respectively).

| Figure 2 |
|---|
| **SERVICE AREA OVERVIEW** |
| Area Served: The City of Boston |
| Boston Land Area: 45.7 square miles |
| Population: 617,594[1] |
| Daytime Population: Approximately 900,000[2] |
| Residents Living Below the Poverty Line: 19%[3] |
| Residents Who Report Speaking a Language Other than English at Home: 36%[4] |
| Services Provided: ALS (Advanced Life Support) and BLS (Basic Life Support) |

[1] http://2010.census.gov/2010census/
[2] http://www.census.gov/population/www/socdemo/daytime/daytimepop.html
[3] U.S. Census Bureau, 2008 American Community Survey
[4] U.S. Department of Commerce, Bureau of the Census, American FactFinder, 2008

# PERFORMANCE MATTERS

As a bureau of the Boston Public Health Commission, Boston EMS is one of the nation's oldest providers of pre-hospital care, tracing its roots back more than 100 years. The Department takes pride in its reputation as both a leader and innovator in the field of pre-hospital emergency medicine. Boston EMS employs over 350 EMTs and Paramedics, all of whom are specially trained to provide compassionate, cutting edge care.

In order to ensure excellence in service delivery, Boston EMS constantly monitors and analyzes performance data such as transport volume, response times, intubation success rates, and patient satisfaction results, among others. With a relentless commitment to quality improvement, Boston EMS is always working to enhance the overall care provided to its patients.

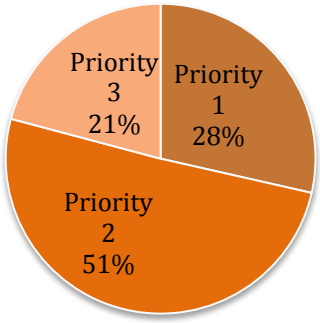
**Figure 3**

| CLINICAL INCIDENTS BY TYPE | NUMBER | PCT. |
|---|---|---|
| Illness (abdominal pain, fever, etc.) | 31,191 | 29% |
| Investigations ("man down", alarm, etc.) | 20,309 | 19% |
| Injury (lacerations, fractures, etc.) | 15,540 | 14% |
| Cardiac Related (unconscious, CPR, etc.) | 10,586 | 10% |
| Respiratory (asthma, CHF, etc.) | 8,560 | 8% |
| Psychological/ Overdose | 8,336 | 8% |
| Motor Vehicle (MVA, pedestrian, cyclist struck, etc.) | 5,824 | 5% |
| Neurological (CVA, seizures, etc.) | 4,871 | 4% |
| Fire/ Hazmat/ Standby/ Environ. | 2,309 | 2% |
| Trauma (penetrating injury, long fall, etc.) | 1,336 | 1% |
| 2010 Total | 108,848 | 100% |

**Figure 5***

| CLINICAL INCIDENTS BY NEIGHBORHOOD | NUMBER | PCT. |
|---|---|---|
| Allston/ Brighton | 6,473 | 6% |
| Back Bay | 8,371 | 8% |
| Beacon Hill/ West End | 2,866 | 3% |
| North End | 3,870 | 4% |
| Charlestown | 2,224 | 2% |
| East Boston | 7,080 | 7% |
| South Boston | 5,997 | 6% |
| South End | 12,290 | 11% |
| Roxbury | 15,705 | 14% |
| Dorchester North | 16,747 | 15% |
| Dorchester South | 7,290 | 7% |
| Roslindale | 4,389 | 4% |
| Jamaica Plain | 3,244 | 3% |
| West Roxbury | 2,927 | 3% |
| Hyde Park | 4,629 | 4% |
| Mattapan | 3,566 | 3% |
| Long Island | 355 | <1% |
| Other/Not Listed | 825 | 1% |
| 2010 Total | 108,848 | 100% |

**Figure 4**
**2010 CLINICAL INCIDENTS BY PRIORITY**




Priority 1: urgent/life threatening
Priority 2: serious/potentially life threatening
Priority 3: non-life threatening illness or injury

**Figure 6**
**2010 PATIENT TRANSPORTS BY AGE**

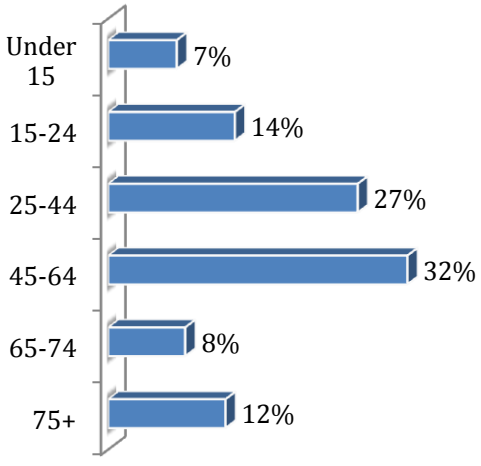
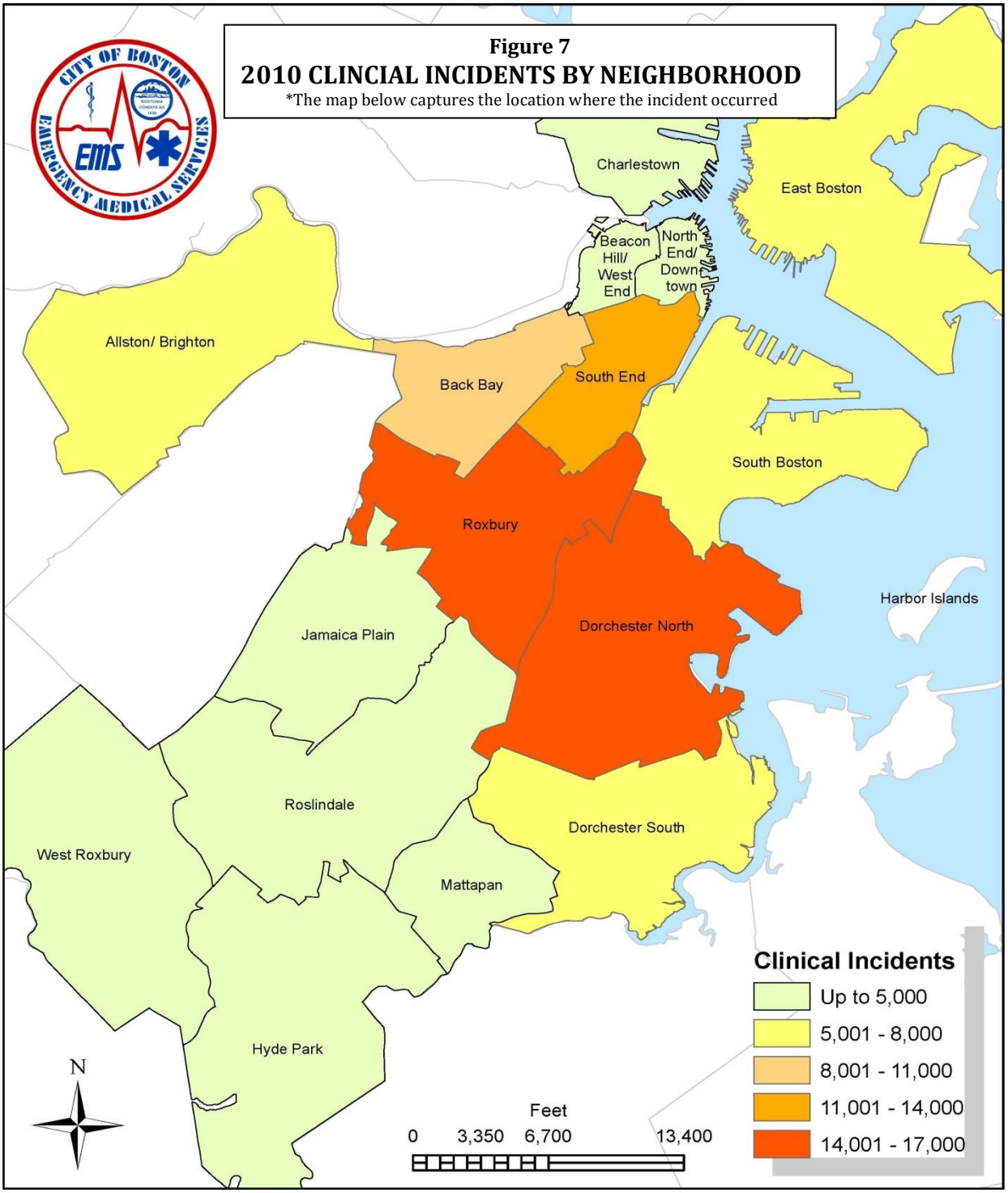



*Figure 5 captures the location where the incident occurred

# PERFORMANCE MATTERS

**Figure 7**
**2010 CLINCIAL INCIDENTS BY NEIGHBORHOOD**
*The map below captures the location where the incident occurred




**Note: This map does not control for neighborhood geographic or population size. Generally speaking, larger and more densely populated areas have a higher number of clinical incidents.

# PERFORMANCE MATTERS

Boston EMS is one of the busiest EMS services in the country, with units responding to an average of 300 calls per day. See response and transport activity by unit in the table below.

**Figure 8**

**2010 RESPONSES AND TRANSPORTS BY UNIT**

| Unit* | Responses 2010 | Responses 2009 | % Chg | | Transports 2010 | Transports 2009 | % Chg |
|---|---|---|---|---|---|---|---|
| 24 HOUR BLS | | | | | | | |
| A1 | 6,825 | 6,467 | 6% | | 4,366 | 3,956 | 10% |
| A2 | **8,360** | 8,180 | 2% | | **5,787** | 5,615 | 3% |
| A3 | 6,451 | 6,284 | 3% | | 4,464 | 4,320 | 3% |
| A5 | 4,216 | 4,009 | 5% | | 2,718 | 2,603 | 4% |
| A6 | 6,908 | 6,610 | 5% | | 4,515 | 4,369 | 3% |
| A7 | 4,918 | 4,927 | 0% | | 2,928 | 2,897 | 1% |
| A11 | 6,666 | 6,545 | 2% | | 4,596 | 4,536 | 1% |
| A13 | 6,513 | 6,251 | 4% | | 4,400 | 4,204 | 5% |
| A14 | 4,370 | 4,027 | 9% | | 2,862 | 2,624 | 9% |
| A15 | 4,433 | 4,270 | 4% | | 2,645 | 2,522 | 5% |
| A18 | 4,081 | 3,902 | 5% | | 2,629 | 2,633 | 0% |
| 20 HOUR BLS | | | | | | | |
| A8 | 5,613 | 5,591 | 0% | | 3,334 | 3,358 | -1% |
| A10 | 6,192 | 6,263 | -1% | | **4,231** | 4,195 | 1% |
| A12 | 5,811 | 5,991 | -3% | | 4,004 | 3,914 | 2% |
| A16 | **6,274** | 6,078 | 3% | | 4,031 | 3,866 | 4% |
| 16 HOUR BLS | | | | | | | |
| A4 | **5,811** | 6,512 | -11% | | **3,692** | 4,385 | -16% |
| A9 | 3,466 | 3,563 | -3% | | 2,335 | 2,380 | -2% |
| A17 | 3,871 | 4,018 | -4% | | 2,546 | 2,692 | -5% |
| A19 | 4,026 | 4,037 | 0% | | 2,849 | 2,803 | 2% |
| 24 HOUR ALS | | | | | | | |
| P1 | 5,284 | 5,001 | 6% | | 1,448 | 1,259 | 15% |
| P2 | **5,896** | 5,470 | 8% | | **1,601** | 1,594 | 0% |
| P5 | 4,144 | 4,022 | 3% | | 1,420 | 1,301 | 9% |
| 16 HOUR ALS | | | | | | | |
| P3 | 3,173 | 3,107 | 2% | | **1,256** | 1,071 | 17% |
| P16 | **3,612** | 3,609 | 0% | | 1,134 | 1,045 | 9% |

*See page 7 for unit location.
**Note: The table above includes only BLS and ALS transport units and does not include Supervisor, Command Staff or Special Operations unit responses.

# PERFORMANCE MATTERS

The Boston EMS Service Zone Plan outlines the Department's response time goals.[5] In late 2009, Boston EMS made a series of updates to the plan, chief among them were aggressive revisions to the Department's response time targets. Boston EMS tightened its response time goals to not only reflect its capability but to challenge the Field Operations Division to continue to improve service delivery for the City of Boston. The Department is proud to report that during the course of 2010, Boston EMS consistently surpassed the revised targets for both priority 1 and priority 3 incidents and met the revised targets for priority 2 incidents nearly every month.

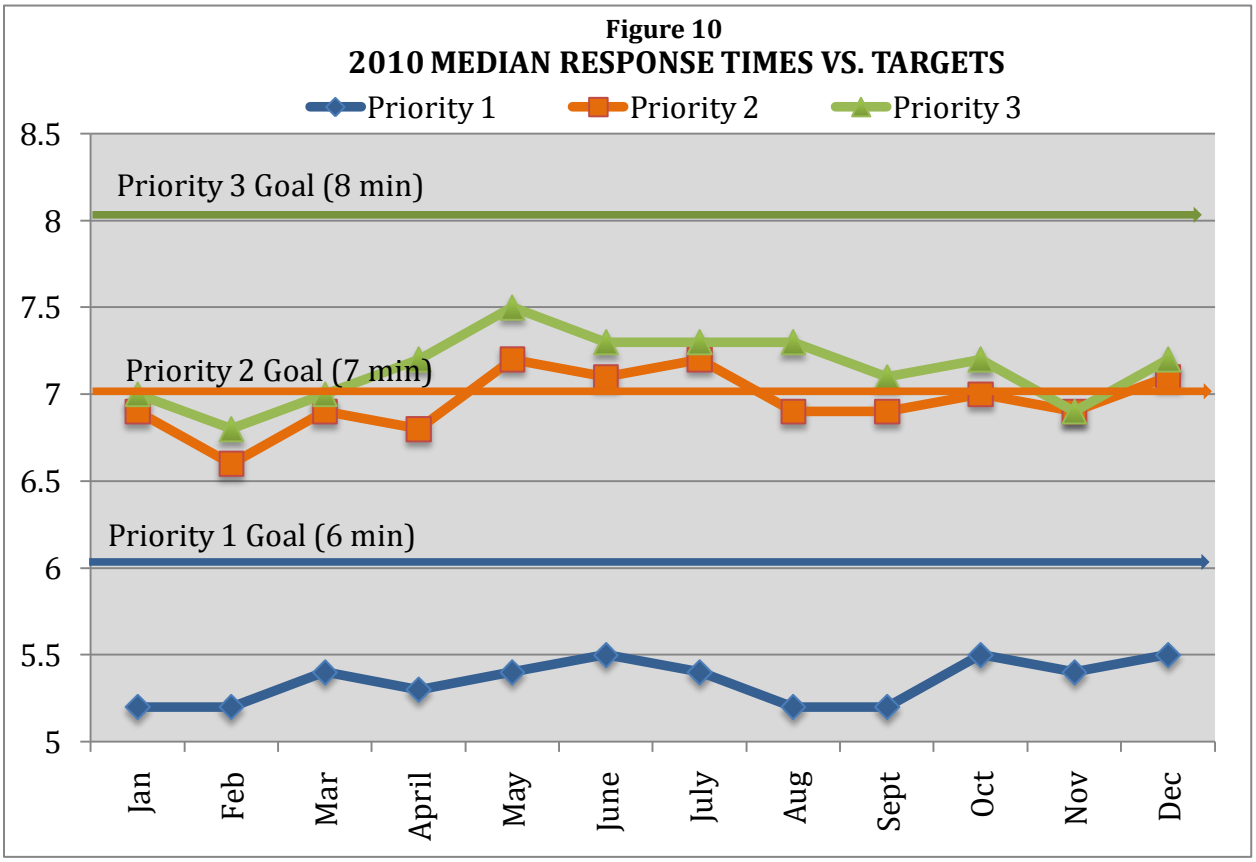
**Figure 9**

**2010 MEDIAN RESPONSE TIMES**

| Priority Level | 2010 | Goal |
|---|---|---|
| Priority 1 (urgent/life threatening) | 5.3 minutes | 6.0 minutes |
| Priority 2 (serious/potentially life threatening) | 7.0 minutes | 7.0 minutes |
| Priority 3 (non-life threatening illness or injury) | 7.1 minutes | 8.0 minutes |

**Figure 10**

**2010 MEDIAN RESPONSE TIMES VS. TARGETS**

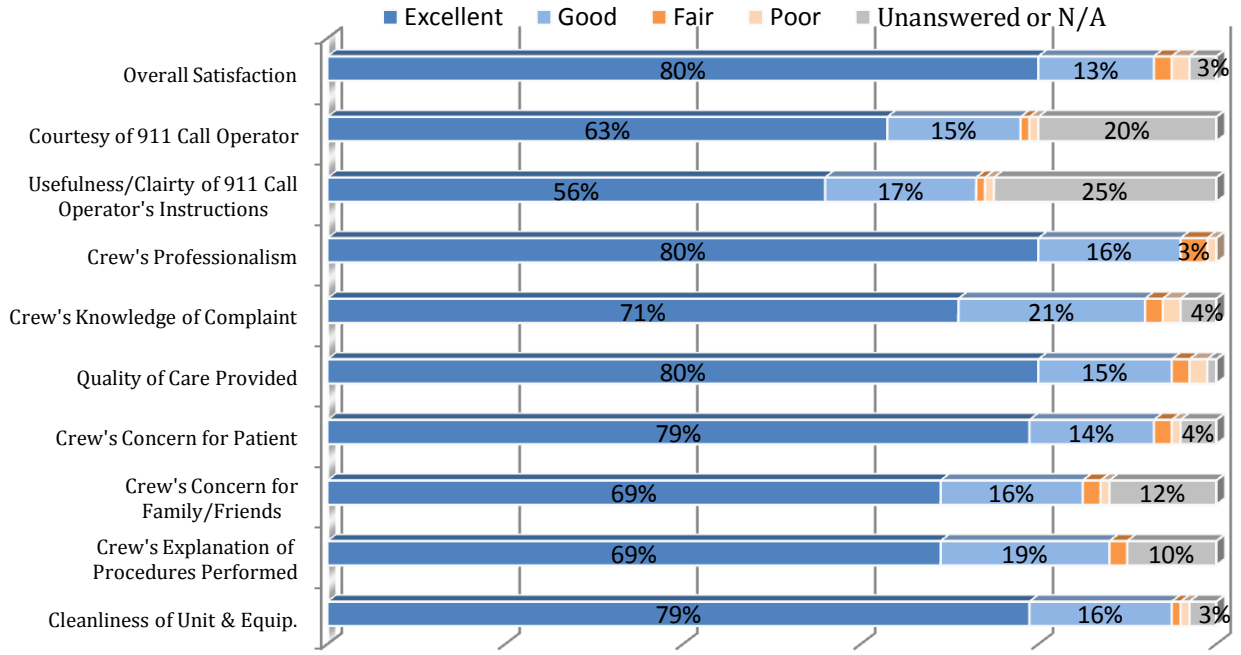



[5] http://www.cityofboston.gov/ems/service_zone.asp

# PATIENT SATISFACTION

Providing patients with excellent patient care is always Boston EMS' first priority. In May 2010, Boston EMS began a new initiative designed to gather feedback from patients regarding service delivery. Every patient transported by Boston EMS is sent a patient satisfaction survey which asks respondents to rate 10 specific areas of the Department's service as excellent, good, fair or poor. The survey also encourages respondents to provide comments about their experience with Boston EMS. Although only a small number of patients responded to the survey , the 2010 results were very positive – 93% of individuals who returned surveys felt the Department's overall service delivery was either excellent or good (80% and 13% respectively). Additionally, 95% of respondents felt Boston EMS' quality of care was either excellent or good (80% and 15% respectively).

**Figure 11**
**2010 PATIENT SATISFACTION SURVEY RESULTS**




*Respondents have the option not to reply or to choose n/a for any category
**For visual clarity, data labels for responses representing >2% of the total have been removed

Here is what some of Boston EMS' patients are saying about the level of care they received:

*"I can't say enough about the care and service. Thank you again."*

*"Service received was excellent in every way. Thank you."*

*"Very, very impressed. I had no idea how good Boston EMS was."*

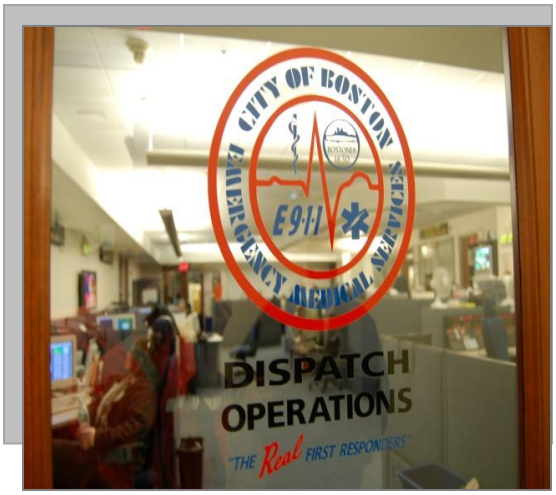
*Exceptional, kind, considerate and compassionate. Kudos."*

*"I was overwhelmed by the caring service I received while I was in such pain. Thanks!"*

# STATION LOCATIONS

In order to ensure quick response times, Boston EMS deploys 19 Basic Life Support (BLS) ambulances and 5 Advanced Life Support (ALS) ambulances during peak hours. Boston EMS stations are strategically located throughout the City. Based on call volume, several EMS crews shift change at a station and then proactively re-post to locations that typically experience a higher demand for service. In July, the City of Boston, Tufts Medical Center and Boston EMS opened a new ambulance station in Chinatown. The new station allows the City to locate two more ambulances in a dense area near downtown Boston, making emergency medical services even more immediate and accessible.

# DISPATCH OPERATIONS



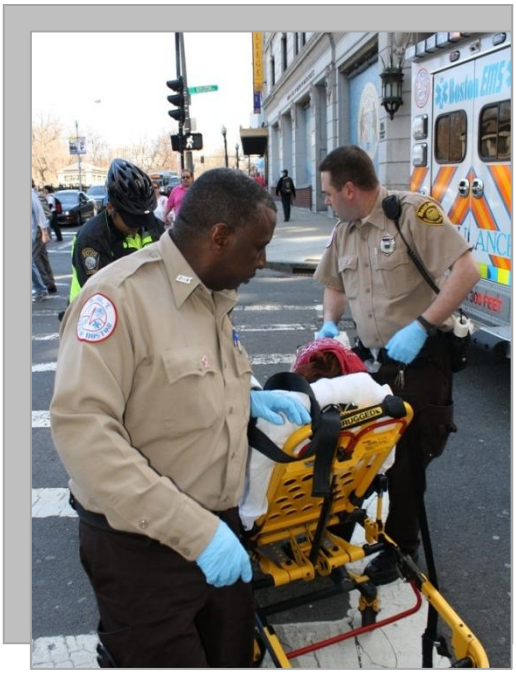

The Boston EMS Dispatch Operations Center, co-located with the Boston Police 9-1-1 center at Boston Police Headquarters, is responsible for prioritizing incoming emergency medical calls, dispatching emergency units, and coordinating with other public safety agencies as well as local hospitals.

All 9-1-1 calls that are identified as medical in nature are handled by uniformed EMTs who have received an additional 19 weeks of specialized training in Emergency Medical Dispatch. Often referred to as "the real first responders", Boston EMS Telecommunicators serve as the critical link between the public and the EMS crews on the street. Calltakers verify EMS calls, determine their location, dispatch the appropriate units, and provide callers with pre-arrival instructions which assist bystanders or patients in caring for illness and injury before Boston EMS arrives on scene.

In addition to handling 911 calls, Dispatch Operations also manages the Metro-Boston Central Medical Emergency Direction (CMED) radio system. CMED allows for coordination between EMS field providers and area hospitals throughout the 62 cities and towns in the Metro Boston area.

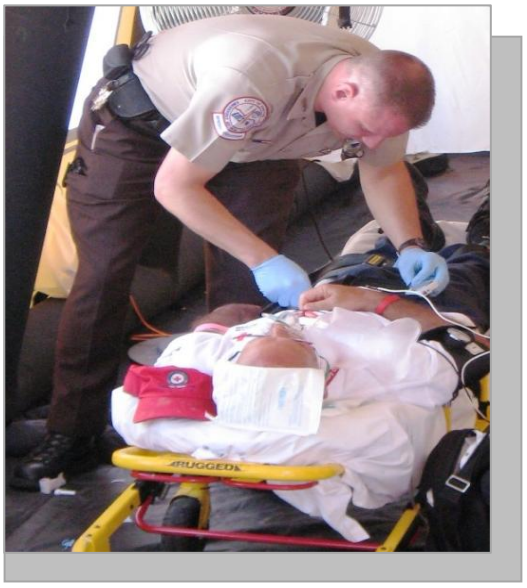
In Dispatch Operations, excellent communication is critical – in 2010, Boston EMS focused on improving communication with its external partners. The Department enhanced its radio networks with the intent of improving interoperability with its public safety partners, Boston Police and Boston Fire. Additionally, Boston EMS further developed the Boston Area Ambulance Mutual Aid Network (BAMA), a resource that allows for inter-dispatch center communication between Boston EMS and back up providers. The enhancements made to BAMA have improved information flow between Boston EMS and private agencies resulting in stronger relationships and reduced response times.

# CLINICAL INNOVATION



Boston EMS is nationally recognized for being ahead of the pack when it comes to state-of-the-art pre-hospital medical care. Under the leadership of Medical Director Sophia Dyer, MD, Boston EMS provides the latest advancements in pre-hospital emergency care, conducts ground breaking research, and operates a comprehensive quality assurance program. The City of Boston consistently ranks among the top cities for cardiac arrest survival rates and Boston EMS Paramedics have an intubation success rate of 95.7%.[6]

Boston EMS' Research, Training, and Quality Improvement (RTQI) team, made up of emergency department physicians, EMTs, Paramedics, and Training Officers, works to ensure that the Department's EMTs and Paramedics are prepared to consistently deliver superior patient care. The team is currently researching best practices in cardiac resuscitation, the effectiveness of alternative intravenous access devices, and the impact of new breathing equipment, among other pre-hospital care interventions.



In 2010, Boston EMS continued to offer advanced therapies such as continued positive airway pressure (CPAP) and therapeutic hypothermia. CPAP, a non-invasive procedure that forces oxygen into the lungs, is a therapy applied to patients in severe respiratory distress. Historically CPAP was only used in the hospital setting, but in April 2007 Boston EMS Paramedics began administering the treatment in the field. CPAP often reduces the need for intubation (the insertion of a tube to assist with ventilation) and minimizes complications, resulting in shorter hospital stays. In 2010 Boston EMS treated 175 patients with CPAP.

[6] Each time a Boston EMS Paramedic attempts an intubation, the incident is reviewed by a paramedic research coordinator and at least one Boston EMS physician as part of the Boston EMS Airway Registry. In 2010, the overall success rate for intubations (any number of attempts) was 95.7%. The overall success rate since the program's launch in 2006 is 96.3% (any number of attempts).

## CLINICAL INNOVATION

Boston EMS became one of the first adopters of pre-hospital therapeutic hypothermia in 2008. Therapeutic hypothermia, the process of cooling the body and maintaining mild hypothermia (32-34°C) in the first 12 - 24 hours after cardiac arrest, helps to protect brain function and can improve survival and neurological outcomes. In 2010, Boston EMS Paramedics applied this life-saving therapy to 90 patients.

Over the last year the Department has also continued to carefully monitor cardiac arrest data. Since 2004 RTQI has been reviewing all cardiac arrests that occur in the City of Boston. In order to identify ways to improve patient care, RTQI evaluates each incident individually and enters case information into an internal cardiac registry. Additionally, RTQI downloads and assesses pre-hospital electrocardiographic information. Such thorough and comprehensive data collection allows RTQI to conduct in-depth research with the goal of identifying new methods to enhance clinical care. In 2008, Boston EMS began contributing data to the CARES (Cardiac Arrest Registry to Enhance Survival) cardiac arrest registry, managed out of Emory University by Brian McNally, MD, a former Boston EMS Physician Fellow.

In addition to carefully monitoring cardiac arrest data, Boston EMS launched a program in 2009 called "AED Alert" to more effectively track the location of public automatic external defibrillators (AEDs). The Department has been updating its computer aided dispatch (CAD) system to specifically name all known publically located AEDs throughout the City. The goal of the program is to provide 911 callers with life saving instructions during a witnessed cardiac arrest. Studies have repeatedly shown that immediate bystander CPR combined with defibrillation within 3-5 minutes of a collapse can help improve cardiac arrest survival rates. Additionally, studies have shown that a large proportion of cardiac arrests happen in public places such as athletic facilities and office buildings. When a 911 call comes in from a public facility and an AED is on site, CAD will trigger an alert prompting EMS Telecommunicators to provide the caller with instructions on where to retrieve the device and how to apply it. In 2010, Boston EMS added 310 new AEDs to the system bringing the current total to nearly 900.

# TRAINING AND EDUCATION

The Training Division within Boston EMS' Research, Training and Quality Improvement (RTQI) team, is responsible for the initial and ongoing training as well as the professional development of Boston EMS EMTs and Paramedics. Through its accredited Training Academy, the Division operates an extremely intensive 6-month course designed to prepare new recruits for the challenges of delivering pre-hospital emergency medicine. The course, taught by training personnel with extensive field experience, includes classroom work, rigorous field instruction, exercises, and drills. This year, Boston EMS graduated 13 new recruits from the Training Academy.

In 2010, Boston EMS entered into a new training partnership with Northeastern University's College of Professional Studies to establish an in-house Paramedic program for Boston EMS EMTs. Experienced Boston EMS Paramedics worked closely with Northeastern instructors to develop an intensive and rewarding curriculum. The 18-month program, led by Northeastern instructors and Boston EMS staff educators, provides a strong foundation for Boston EMS students to achieve their clinical goals. Students also have the opportunity to earn and apply credit hours toward an undergraduate degree at the university. A class of 24 students completed the classroom portion of the program in 2010 and entered the clinical phase hosted at Boston Medical Center in early 2011. Participants are scheduled to complete the state paramedic exam process in the fall of 2011.

In addition to training Boston EMS field staff, the Training Division also offers the community a low-cost Basic EMT Course designed to prepare aspiring EMTs for a career in the field of pre-hospital emergency medicine. The 150 hour course offers exceptional classroom training, emergency room observation at Boston Medical Center and the opportunity to observe Boston EMS Operations during an ambulance ride-along. The Training Division offered two community courses in 2010, successfully preparing 73 graduates to pursue state EMT basic certification. Of the 70 individuals who took the state exam, 100% passed and are certified EMT-Bs with the State of Massachusetts.

# SPECIAL OPERATIONS


The Special Operations Division, established in 1995, plans for and responds to major emergencies within the City of Boston including both planned special events and unplanned natural and man-made disasters. The Division is responsible for overseeing Boston EMS' Bicycle Defibrillation Unit (the Bike Team), Harbor Patrol Unit, Tactical Response Unit as well as its hazardous materials response efforts and rapid deployment team activities.

Every year, Boston hosts several major events which bring millions of people together and require significant emergency medical support including the Boston Marathon, the 4th of July Celebration, and First Night. Boston EMS uses these events as "controlled" mass casualty incidents (MCIs) to test disaster protocols, systems and resources. Additionally, there are hundreds of festivals, parades, and other gatherings throughout the year which require EMS support. In 2010, Special Operations oversaw the provision of medical services at over 529 events.

In order to quickly respond to patients during special events and major emergencies, Boston EMS utilizes resources beyond traditional ambulances. For example, the EMS Bike Team, staffed with EMTs and Paramedics, utilizes bicycles outfitted with life saving equipment to easily maneuver through congested areas. All members of the Bike Team must qualify bi-annually to participate ensuring a competent skill level and physical readiness. In 2010, the Bike Team comprised 71 uniformed staff members including 51 EMTs and 16 Paramedics.

In addition to bicycles, Special Operations maintains a variety of support vehicles complete with specialized equipment that are capable of responding to large scale medical emergencies. The Division also maintains power generators, portable communications equipment, stockpiled supplies, shelter systems, and misting stations. A multitude of agencies, both public and private, rely heavily on Boston EMS to facilitate medical coverage and to participate in the coordination of assets, resources and logistics during special events and emergencies. Special Operations allows Boston EMS to effectively respond to such events without compromising the Department's ability to handle the hundreds of incoming 911 calls each day.

# EMERGENCY PREPAREDNESS

Boston EMS has a longstanding commitment to protecting the City's residents and visitors from disasters of all size and scope. The Department plays a significant role in the City's emergency preparedness efforts. Through the DelValle Institute for Emergency Preparedness and the Boston Metropolitan Medical Response System (MMRS), Boston EMS offers specialized trainings and public health coordination preparing the City for large-scale emergencies.

## DelValle Institute for Emergency Preparedness

The DelValle Institute for Emergency Preparedness provides high quality all-hazards training for the Boston community, including public health, hospitals and public safety personnel, with a focus on large scale emergencies.

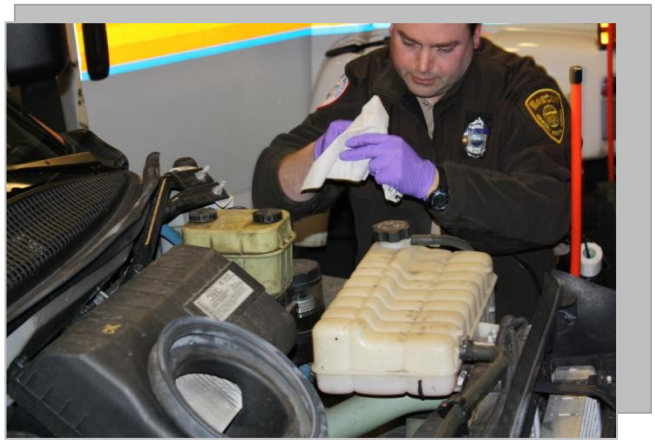
In 2010 DelValle conducted 96 trainings and exercises for its stakeholders. As a result, over 2,000 emergency responders, healthcare providers, and public health professionals throughout the Metro Boston region were trained in various areas including chemical, biological, radiological, nuclear, and explosive incident preparedness, response and recovery. This year, the Massachusetts Department of Public Health chose the Institute as one of two regional education and training centers to develop and deliver course materials. Trainings will be geared toward hospitals, community health centers, EMS agencies, and long-term care facilities within Public Health Emergency Planning Regions 3, 4 and 5.

In October, DelValle held the conference "Beyond Capacity: Medical Surge and Catastrophes". Multidisciplinary practitioners from the Boston area and around the country shared their experiences in medical surge and catastrophes in an effort to develop best practices. Over 250 individuals attended representing a variety of sectors including business, health care, emergency management and law enforcement, among others.

## Boston Metropolitan Medical Response System

Coordinating resources before an incident is a major aspect of the emergency preparedness work that Boston EMS manages for the City and Metro Boston. MMRS is a Homeland Security grant program that serves to support the integration of emergency management, health, and medical systems into a coordinated response to mass casualty incidents. Boston MMRS works to reduce the consequences of a MCI during the initial period of a response by conducting advanced planning, coordinating local medical response systems both before and during a response, and providing assets to assist with medical response operations during a response. The program also procures pharmaceuticals and personal protective equipment for emergency responders, as well as coordinates ongoing planning with the City of Boston's first responders and first receivers related to all hazards medical preparedness.

# FLEET SERVICES



The Fleet Services Division's primary focus is to ensure vehicle and crew safety. The staff is responsible for the maintenance of Boston EMS' entire fleet including ambulances, supervisor vehicles as well as special operations vehicles. Each of Boston EMS' in-house mechanics has at least 10 years of repair experience and is ASE (Automotive Service Excellence) certified. The Department's mechanics perform routine preventative maintenance and ensure that every Boston EMS ambulance passes the annual inspection conducted by the State Office of OEMS.


Boston EMS maintains a wide variety of specialty vehicles and apparatus which are capable of supporting the City in any emergency. Chief among them are the Department's state-of-the-art ambulances. Boston EMS ambulances are capable of meeting the dynamic emergency medical demands of a major metropolitan area like Boston and the variable environmental challenges of the New England climate. Each truck is outfitted with the most advanced pre-hospital care equipment and is generally staffed by two field providers. Basic Life Support (BLS) ambulances are staffed by two EMTs, while Advance Life Support (ALS) ambulances are staffed by two Paramedics.

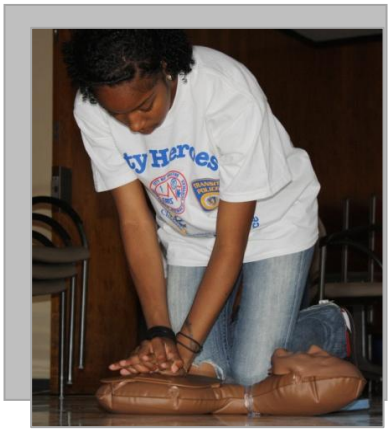
In late 2010, Boston EMS retrofitted an ambulance specially designed to carry obese patients. The ambulance, equipped with a special stretcher that can hold 850 pounds and a hydraulic lift with a 1,000 pound capacity, will improve the comfort-level of patients and potentially reduce injuries among crew members. Personnel were trained in December 2010 on how to use the new equipment, with the ambulance making its official debut in January 2011.

# COMMUNITY INITIATIVES

Boston EMS' Community Initiatives Division, a dedicated partner of the community, offers enriching programming designed to improve the overall health of the City of Boston. Along with its many partners, Community Initiatives operates several programs which help raise awareness about important public health issues.

One of the most effective ways to save a life is to learn CPR. In 2010, Boston EMS taught CPR to more than 2,400 Boston Public School students as well as over 1,900 Boston residents. Boston EMS hosts CPR classes in both English and Spanish and utilizes a kit called "CPR Anytime" that includes a DVD and mini-mannequin, which allows participants to easily teach others what they have learned.

In addition to teaching CPR, Boston EMS helps keep Boston's youngest residents safe by conducting car seat installation safety checks. In 2010, Boston EMS' 15 certified technicians held weekly appointments with new parents resulting in over 1,000 car seat checks.



Along with the Children Youth Services of Roxbury, the Boston Police, and the MBTA Police, the Community Initiatives Division launched a new program in 2010 called City Heroes. The program offers young people a first-hand look at a career in public safety and public health. Fifteen participants had the opportunity to spend 4 sessions with each organization. At Boston EMS, participants learned how the Department prepares for and manages the medical aspects of events like the Fourth of July and the Boston Marathon. They also toured both the Boston Medical Center Emergency Department as well as the Boston EMS training simulation lab. Most importantly, participants were certified in CPR/AED and First AID. The City Heroes Program is an effective approach to creating a pathway for young people to pursue future careers in public safety or public health.

# FINANCIAL PERFORMANCE

Boston EMS has a diversified revenue stream, which includes funds from insurance providers, individual payers, Medicaid, Medicare, grants, and the City of Boston. Approximately 60% of the Department's annual revenue is comprised of payments from private insurance companies, Medicare and Medicaid.

Boston EMS, like many other departments, has felt the effects of the ongoing economic downturn and has always strived to operate in both an efficient and effective manner. In an effort to streamline revenue collections, the Department developed a new relationship in 2010 with a company that specializes in EMS billing and collections.

Boston EMS delivers a critical service to the City of Boston and strives to operate in the most cost-efficient, fiscally responsible manner possible. The Department remains committed to focusing all available resources toward the execution of its core mission – providing excellent patient care to the visitors and residents of the City of Boston.

**Figure 13**
**2010 FUNDING BREAKDOWN**

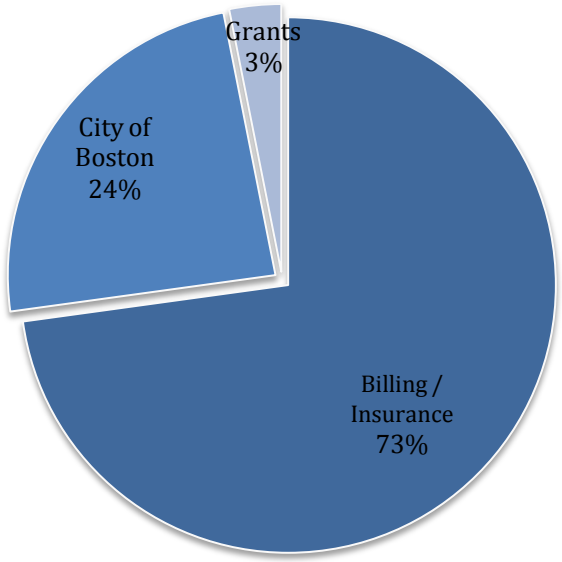
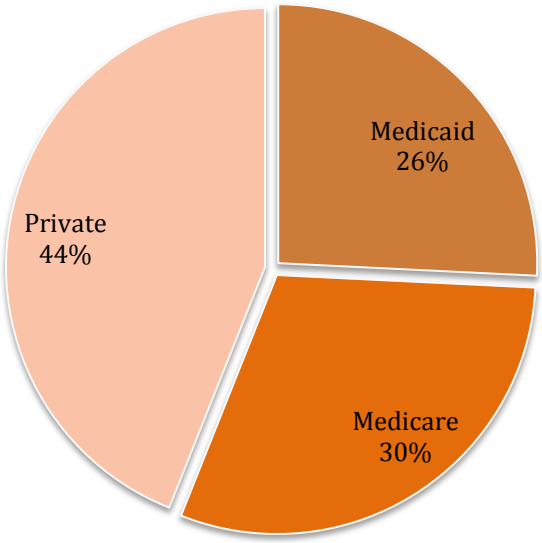



**Figure 14**
**2010 PAYER BREAKDOWN**



# KEY DEFINITIONS

Boston EMS Emergency Medical Technician (EMT): A Department employee, certified by the Massachusetts Office of Emergency Medical Services (OEMS) as an EMT-Basic, who has successfully completed the Boston EMS recruit training and field internship, and is certified by the Department to perform Basic Life Support Skills in accordance with statewide and Boston EMS protocols and special project waivers.

Boston EMS Paramedic: A Department employee, certified by the Massachusetts Office of Emergency Medical Services (OEMS) as an EMT-Paramedic, who has successfully completed the Boston EMS Paramedic selection process, and subsequently successfully completed the Boston EMS Advanced Life Support (ALS) clinical training and field internship. A Boston EMS Paramedic is certified to perform ALS skills in accordance with statewide and Boston EMS protocols and special project waivers.

Basic Life Support (BLS): An EMT unit or the procedures and skills performed by an EMT-Basic. At peak times there are typically 19 BLS units in service, each staffed by two EMTs.

Advanced Life Support (ALS): A Paramedic unit or the advanced procedures and skills performed by a Paramedic. At peak times there are typically 5 ALS units in service, each staffed by two Paramedics.

Clinical Incident: Any request for emergency medical service which generates a distinct entry in the computer aided dispatch (CAD) system. A single clinical incident may generate the response of multiple EMS vehicles or may involve multiple patients (i.e. a train crash would be considered one "incident").

Response: A response is generated for each EMS unit assigned to a request for service. A response is distinct from a clinical incident in that an incident is a request/need for EMS, while a response is the dispatch of a unit (i.e. a train crash would generate multiple "responses").

Response Time: Unlike some systems that calculate response time from call dispatch until unit arrival, Boston EMS measures response time from call entry (i.e. the point at which a calltaker determines the nature and location of an emergency and enters it into the computer aided dispatch system) to EMS unit arrival on scene.

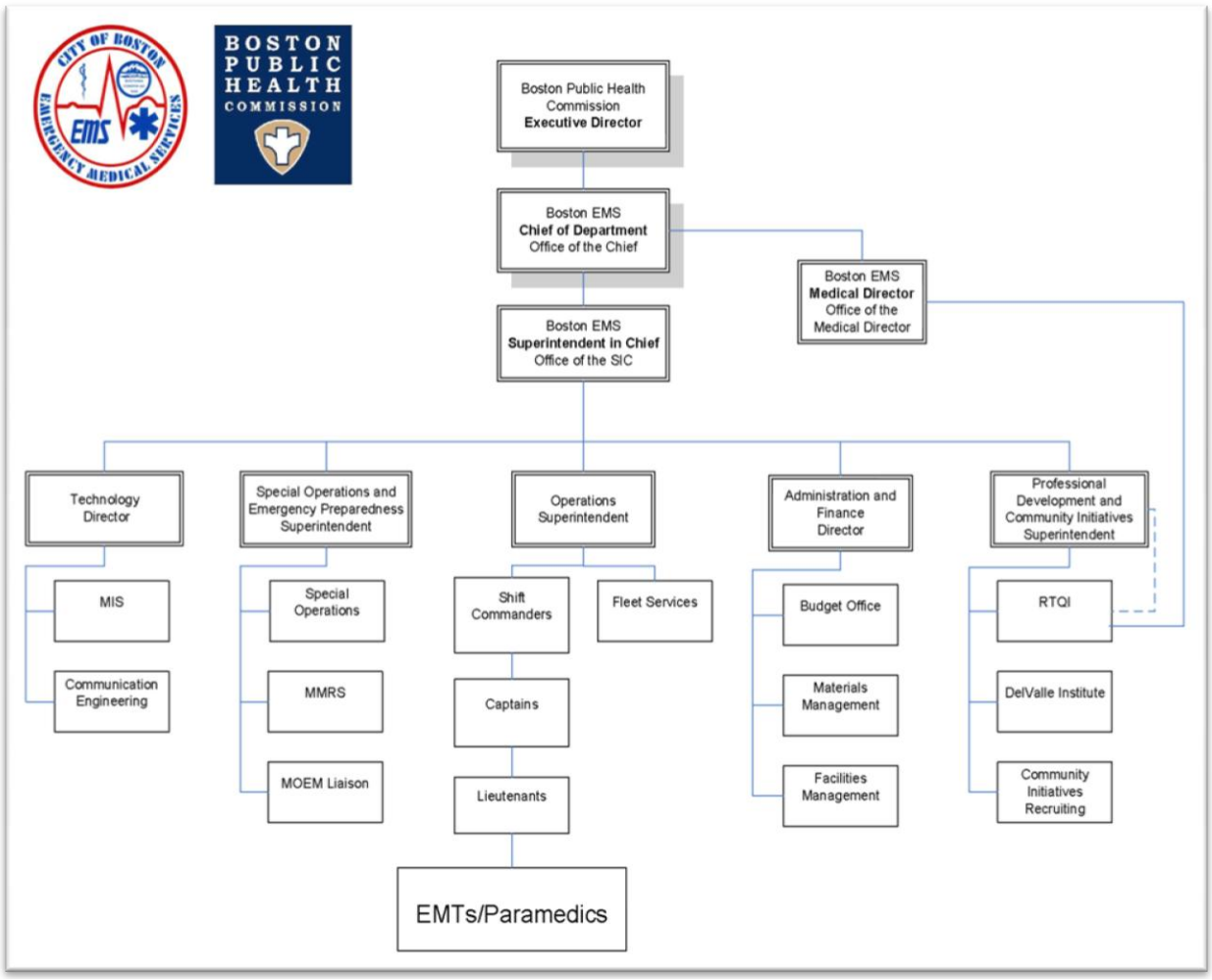
Priority One: An incident category representing time sensitive, life threatening emergencies such as cardiac arrest, uncontrollable arterial bleeding, unconsciousness, etc.

Priority Two: An incident category representing potentially life threatening emergencies such as orthopedic injury, lacerations with controlled bleeding, abdominal distress, etc.

Priority Three: An incident category representing non-acute injury or illness.

Neighborhoods: Back Bay includes Kenmore, Fenway, and Chinatown; North End includes portions of Downtown; Roxbury includes Longwood and Mission Hill; "Other" includes Boston Harbor and areas outside of Boston.

# ORGANIZATIONAL CHART



# 2010 STATS / FACT SHEET

## BOSTON EMERGENCY MEDICAL SERVICES

2010 VITAL STATISTICS
www.cityofboston.gov/ems

Boston Emergency Medical Services (Boston EMS) is the primary emergency medical services provider for the City of Boston. As a nationally recognized leader and innovator in the field of pre-hospital emergency medicine, the Department leverages the latest advances in both medicine and technology to bring high-quality care to the streets of Boston. Boston EMS also plays an important role in the City's emergency preparedness efforts and provides enriching programming designed to educate the community about important public health and safety issues.

Boston Land Area: 45.7 sq. miles | Daytime Population: ~900,000 | Boston EMS Uniformed Staff: 358
Non-uniformed Staff: 44 | Emergency Medical Technicians: 241 | Paramedics: 70
Number of Ambulances: 50 | Peak Staffing: 19 BLS & 5 ALS Units | Number of Stations: 17

| SYSTEMWIDE CALL VOLUME | | | |
|---|---|---|---|
| | 2010 | 2009* | Pct. Change |
| Total Clinical Incidents | 108,848 | 107,512 | 1% increase |
| Total ALS and BLS Responses | 136,653 | 135,665 | 1% increase |
| Total Transports | 79,443 | 78,458 | 1% increase |
| Total ALS Transports | 7,633 | 7,153 | 7% increase |
| Total BLS Transports | 71,810 | 71,305 | 1% increase |

* Previously published 2009 response and transport data is adjusted slightly (less than 1%) after reconciliation with other data sources.

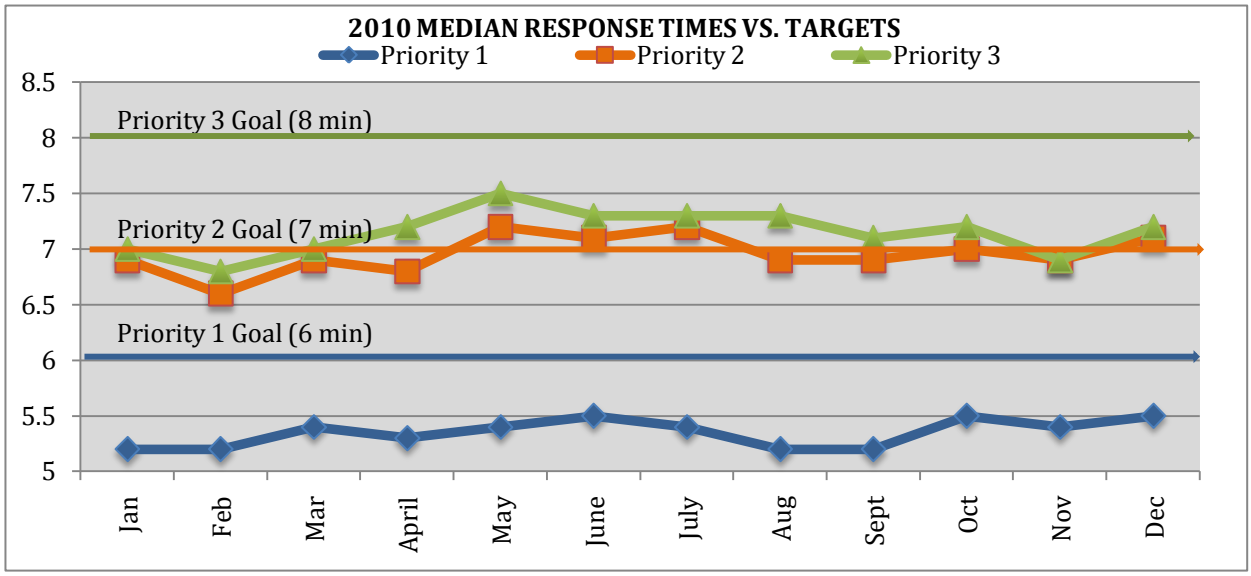
| MEDIAN RESPONSE TIMES | | | |
|---|---|---|---|
| | 2010 | 2009 | Goals |
| Priority 1 | 5.4 minutes | 5.5 minutes | 6.0 minutes |
| Priority 2 | 7.0 minutes | 6.9 minutes | 7.0 minutes |
| Priority 3 | 7.1 minutes | 7.1 minutes | 8.0 minutes |

| NEIGHBORHOOD | *CLINICAL INCIDENTS* | *PCT.* |
|---|---|---|
| Allston/ Brighton | 6,473 | 6% |
| Back Bay | 8,371 | 8% |
| Beacon Hill/ West End | 2,866 | 3% |
| North End | 3,870 | 4% |
| Charlestown | 2,224 | 2% |
| East Boston | 7,080 | 7% |
| South Boston | 5,997 | 6% |
| South End | 12,290 | 11% |
| Roxbury | 15,705 | 14% |
| Dorchester North | 16,747 | 15% |
| Dorchester South | 7,290 | 7% |
| Roslindale | 4,389 | 4% |
| Jamaica Plain | 3,244 | 3% |
| West Roxbury | 2,927 | 3% |
| Hyde Park | 4,629 | 4% |
| Mattapan | 3,566 | 3% |
| Long Island | 355 | 0% |
| Other | 825 | 1% |
| Total | 108,848 | 100% |

| *CLINCIAL INCIDENTS BY TYPE* | *NUMBER* | *PCT.* |
|---|---|---|
| Illness (abdominal pain, fever, dizzy) | 31,191 | 29% |
| Investigations ("man down", alarm) | 20,309 | 19% |
| Injury (lacerations, fractures, etc.) | 15,504 | 14% |
| Cardiac Related (unconscious, CPR, etc.) | 10,586 | 10% |
| Respiratory (Asthma, CHF, etc.) | 8,560 | 8% |
| Psychological/ Overdose | 8,336 | 8% |
| Motor Vehicle (MVA, pedestrian, cyclist struck, etc.) | 5,824 | 5% |
| Neurological (CVA, seizures) | 4,871 | 4% |
| Fire/ Hazmat/ Standby/ Environ. | 2,331 | 2% |
| Trauma (penetrating injury, long fall, etc.) | 1,336 | 1% |
| Total | 108,848 | 100% |

| *CLINICAL INCIDENTS BY PRIORITY* | *NUMBER* | *PCT.* |
|---|---|---|
| Priority 1 | 30,487 | 28% |
| Priority 2 | 54,030 | 50% |
| Priority 3 | 22,276 | 20% |
| Priority 4 | 2,055 | 2% |
| Total | 108,848 | 100% |

*2010 MEDIAN RESPONSE TIMES VS. TARGETS*




| OTHER SYSTEM HIGHLIGHTS | | | |
|---|---|---|---|
| Specialized Clinical Care | | Community Initiatives / Training / Patient Satisfaction | |
| # of Naloxone Uses by Boston EMS BLS Providers[7] | 116 | Car Seat Checks Performed | 1,027 |
| # of STEMIs Identified[8] | 92 | Individuals Taught CPR | 4,341 |
| # of Pts. Treated with Therapeutic Hypothermia[9] | 90 | Individuals Trained through DelValle Institute | 1,996 |
| Overall Intubation Success Rate | 95.7% | New EMTs who Graduated from the Academy | 13 |
| # of Pts. Treated with CPAP[10] | 175 | Students who Completed Boston EMS EMT Course | 73 |
| Public Access AEDs in Database (55% increase from '09)[11] | 876 | Pct. of Patients Rating Service as Excellent or Good | 93% |

*SIGNIFICANT EVENTS*

- On 1/25/10, Dr. Barbara Ferrer, executive director of the Boston Public Health Commission, appointed 32-year veteran James W. Hooley as Chief of Boston Emergency Medical Services.
- EMT Mike Vojak, Paramedic Greg Bond, Boston EMS Fellow Dr. David Hirsch and Communications Specialist Phil Balboni, all volunteers with disaster medical organizations, were deployed to Haiti in response to January's earthquake.
- Brendan Kearney, 26-year veteran of Boston EMS, was named Superintendent-in-Chief on 6/7/10.
- In July, the City of Boston, Tufts Medical Center and Boston EMS open a new ambulance station in Chinatown.
- In August, Boston EMS celebrated the promotions of 3 Captains, 4 Lieutenants, and 10 Paramedics as well as the graduation of 13 new EMTs.
- Boston EMS' DelValle Institute for Emergency Preparedness held the conference "Beyond Capacity: Medical Surge and Catastrophes", in October which focused on best practices in medical surge and catastrophes.
- EMTs John Cotter and James McCabe were recognized as BLS provider of the year, and Paramedic Juli Nichols was named ALS provider of the year at the 10th Annual Metro Boston EMS Council Region IV Awards in October.
- In December, Boston EMS launched a new bleeding control protocol intended to stop life-threatening bleeding through the use of a hemostatic bandage.

[7] BLS Nasal Naloxone (Narcan®) – a Special Project Waiver allowing Boston EMS BLS providers to provide Naloxone to patients with known or suspected narcotic overdose.
[8] Boston EMS Paramedics are trained to read 12-lead ECGs and can identify various types of cardiac incidents including STEMIs (ST – Segment Elevation Myocardial Infarction). As a result, Boston EMS ALS units notify and transport these patients to specialty designated cardiac centers with the goal of improving survival rates.
[9] The process of cooling the body and maintaining mild hypothermia (32-34°C) in the first 12 - 24 hours after cardiac arrest. Boston is among the first services in the nation and second in Massachusetts to utilize this advanced treatment in the pre-hospital arena.
[10] Typically used in the hospital setting, Boston EMS began applying Continued Positive Airway Pressure (CPAP) in 2007. CPAP, a non-invasive procedure that forces oxygen into the lungs, is applied to patients in severe respiratory distress.
[11] In 2009 Boston EMS launched "AED Alert", allowing call takers to identify the location of public AEDs throughout the City.

# FACES OF BOSTON EMS